CLAIMS

The present listing of claims replaces all previous claim listings in the application.

1-13. (canceled)

14. (currently amended) The computer aided, low grounding impedance and efficient-cooling method of disposing a substrate-received hybrid electronic circuit device on a device-supporting metallic carrier member, said method comprising the steps of:

segregating a selected length of metallic carrier member stock from an extended length of said stock;

defining in computer code an array of milling machine cutter paths extending across an upper surface of said selected length of metallic carrier member stock, from an open end of a carrier recess well to be milled in said metallic carrier member upper surface;

said defined milling machine cutter paths including a plurality of milling machine cutter operation-free upstanding metallic carrier member pillar regions selectively disposed across a bottom surface of said recess well in response to pillar region-defining coding in said computer code;

machining said recess well, with recess well remainder areas comprising said upstanding pillar regions, into said metallic carrier member stock using lateral movements of said milling machine cutter controlled by said computer code;

fabricating a carrier recess well-conforming, conductor-clad, electrically insulating, hybrid electrical circuit device substrate member from a blank of said substrate member stock using a milling machine also controlled by ~~said~~ computer code;

said fabricated hybrid electrical circuit device substrate member including substrate-piercing hole members disposed therein in clad conductor locations registered with said metallic carrier member pillar regions; and

attaching said hybrid electrical circuit device substrate member to said metallic carrier member within said carrier recess well using heat responsive electrically conductive attachment material;

said attaching step including forming attachment material bonds between said clad conductor and said upstanding metallic carrier member pillar regions at said substrate-piercing hole members.

15. (original) The computer aided, low grounding impedance and efficient-cooling method of disposing a substrate-received hybrid electronic circuit device on a device-supporting metallic carrier member of claim 14 wherein said step of machining said recess well includes milling machine cutter lateral cutting engagement with said metallic carrier member stock.

16. (original) The computer aided, low grounding impedance and efficient-cooling method of disposing a substrate-received hybrid electronic circuit device on a device-supporting metallic carrier member of claim 14 wherein said milling machine cutter control computer code includes a special case algorithm supporting cutter machining in pillar separation spaces smaller than a nominal cutter diameter.

17. (original) The computer aided, low grounding impedance and efficient-cooling method of disposing a substrate-received hybrid electronic circuit device on a device-supporting metallic carrier member of claim 14 wherein said step of fabricating a carrier recess well-conforming, conductor-clad, electrically insulating, hybrid electrical circuit device substrate member from a blank of said substrate member stock includes milling machine cutter operation on a substrate member upper surface conductor comprising a microwave electronic circuit and milling machine cutter operation through a lower ground plane conductor.

18. (original) The computer aided, low grounding impedance and efficient-cooling method of disposing a substrate-received hybrid electronic circuit device on a device-supporting metallic carrier member of claim 14 wherein said fabricated hybrid electrical circuit device substrate member further includes additional substrate-piercing hole members disposed in clad conductor locations non registered with said metallic carrier member pillar regions.

19. (original) The computer aided, low grounding impedance and efficient-cooling method of disposing a substrate-received hybrid electronic circuit device on a device-supporting metallic carrier member of claim 14 wherein said step of defining in computer code an array of milling machine cutter paths extending across an upper surface of said selected length of metallic carrier member stock, from an open end of a carrier recess well to be milled in said metallic carrier member upper

surface includes defining a sequence of orthogonally disposed milling machine cutter movement paths.

20. (original) The computer aided, low grounding impedance and efficient-cooling method of disposing a substrate-received hybrid electronic circuit device on a device-supporting metallic carrier member of claim 14 wherein said step of defining in computer code an array of milling machine cutter paths extending across an upper surface of said selected length of metallic carrier member stock, from an open end of a carrier recess well to be milled in said metallic carrier member upper surface, includes defining in computer code a pedestal member region larger in physical size than said carrier member pillar regions.

21. (new) The computer aided, low grounding impedance and efficient-cooling method of disposing a substrate-received hybrid electronic circuit device on a device-supporting metallic carrier member of claim 14 wherein said step of machining includes cutting a substrate-receiving recess in said supporting metallic carrier member using a computer algorithm guided milling machine cutter bit.

22. (new) The computer aided, low grounding impedance and efficient-cooling method of disposing a substrate-received hybrid electronic circuit device on a device-supporting metallic carrier member of claim 14 wherein:

said step of fabricating a hybrid electrical circuit device substrate member includes disposing a plurality of thickness-traversing apertures in precisely defined, lateral locations of said substrate member and disposing a shaped additional larger aperture in a precisely defined, lateral location of said substrate member; and

said machining step also includes leaving an upstanding carrier metal-comprised pillar member, disposed in registration with said shaped additional larger substrate member aperture, on a floor portion of said metallic carrier member; and further including the step of

locating an electronic circuit die member on an upper surface of said upstanding carrier member metal-comprised pillar member within said substrate shaped additional larger aperture.

23. (new) The computer aided, low grounding impedance and efficient-cooling method of disposing a substrate-received hybrid electronic circuit device on a device-supporting metallic carrier member of claim 14 further including the step of connecting circuit nodes of said pillar-mounted electronic circuit die member with

circuit nodes of said substrate-received hybrid electrical circuit device substrate member using bond wire jumper conductors.

24. (new) The computer aided, low grounding impedance and efficient-cooling method of disposing a substrate-received hybrid electronic circuit device on a device-supporting metallic carrier member of claim 14 wherein said attaching step forming of attachment material bonds between said clad conductor and said upstanding metallic carrier member pillar regions at said substrate-piercing hole members includes use of one of a conductive epoxy adhesive material, indium solder material and tin-lead solder material.

25. (new) The computer aided, low grounding impedance and efficient-cooling method of disposing a substrate-received hybrid electronic circuit device on a device-supporting metallic carrier member of claim 14 wherein said pillar region-defining coding in said computer code and said defining step computer code are located in a same computer code file.

26. (new) The computer aided, low grounding impedance and efficient-cooling method of disposing a substrate-received hybrid electronic circuit device on a device-supporting metallic carrier member of claim 14 wherein said fabricating step conductor-cladding includes a ground plane element conductor having a computer code determined metallic carrier member pillar region receiving aperture disposed therein.